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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/994,774 | 11/28/2001 | Gert Heinrich | P21645 | 8360 |
| 7055 | 7590 | 12/09/2003 | EXAMINER | |
| GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191 | | | WYROZEBSKI LEE, KATARZYNA I | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1714 | |

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---|--|--|
| Office Action Summary | Application No. 09/994,774 | Applicant(s) HEINRICH ET AL. | |
| | Examiner Katarzyna Wyrozewski Lee | Art Unit 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on interview of 12/3/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s). <u>1203</u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

In view of interview conducted with Mr. Stephen Roylance on December 3, 2003 following first office action is re-issued with time restarted. In view of the above references previously applied in the rejection will not be re-submitted, as the applicant already have the documents. Only new prior art applied will be listed.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the instant case, claim 5 in lines 2 and 4 discloses term of "substituted" when describing R radicals on ammonium cation. Term "substituted" renders claim indefinite since it is not clear as to what exactly are the substituents on the R group.

It should be pointed out that independent claim 1 contains limitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use,

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then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-14, 16-27 are rejected under 35 U.S.C. 102(e) as being anticipated by LARSON (US 6,598,645).

The prior art of LARSON discloses composition for tire comprising usual reinforcing filler such as carbon black and intercalated clay. The composition of the prior art of LARSON is utilized in tire components such as sidewall insert and optionally apex.

The clay of the prior art of LARSON is CLOISITE 25A, which is sold by Southern Clay Products Company and consists of montmorillonite clay intercalated with dimethyl hydrogenated ditallow ammonium chloride, wherein tallow is aliphatic hydrocarbon having 16-18 carbon atoms (see Table 1, col. 9). The specification further enables any smectite clay intercalated with

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ammonium compound having alkyl substituents. The alkyl substituents 1-40 carbon atoms preferably 1-18 carbon atoms such as octadecyl tallow groups and the like. More specific examples are dimethyl dialkyl ammonium chloride salt. In the process of LARSON, intercalated clay is incorporated into the composition and exfoliated in situ within elastomer host (see Examples). According to the specification, silicate platelet has diameter of 10-1000 nm (col. 2, line 45). The platelet thickness is in a range of 1-20 nm.

According to claim 1B (col. 11) the intercalated clay is utilized in amount of 1-10 parts by weight, while carbon black is utilized in amount of 20-99 parts by weight. In the examples (Table 1) the total amount of the two fillers is 60 parts by weight.

Rubber in the prior art of LARSON includes 1,4 cis-polyisoprene rubber both synthetic and natural, polybutadiene, SBR, SIB and the like (col. 6, lines 33-51). In the examples, natural rubber is utilized in 100 parts by weight (Table 1). The specification discloses use of 1,4-cis polyisoprene, since that is the monomer utilized, then the content of 1,4-cis is about 100%.

Table 1 also discloses use of processing oil in the amount of 4 pbw, zinc oxide and tackifying resin in addition to the curatives.

The specification further enables one of ordinary skill in the art to utilize coupling agents, which are bifunctional silanes having alkoxy substituents.

In the light of the above disclosure, the prior art of LARSON anticipates requirements of the present invention.

5. Claims 1, 5-29 are rejected under 35 U.S.C. 102(e) as being anticipated by LARSON (US 2003/032710).

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The prior art of LARSON discloses composition for tire tread comprising usual reinforcing filler such as carbon black and intercalated clay.

The clay of the prior art of LARSON is CLOISITE 15A, 20A and 25A, which is sold by Southern Clay Products Company and consists of montmorillonite clay intercalated with dimethyl hydrogenated ditallow ammonium chloride, wherein tallow is aliphatic hydrocarbon having 16-18 carbon atoms (see Table 1, col. 9). In the process of LARSON, intercalated clay is incorporated into the composition and exfoliated in situ within elastomer host (see Examples). According to the specification, silicate platelet has diameter of 10-1000 nm (col. 2, line 45).

According to claim 1B (col. 11) the intercalated clay is utilized in amount of 1-10 parts by weight, while carbon black is utilized in amount of 20-99 parts by weight. In the examples (Table 1) the total amount of the two fillers is 60 parts by weight.

Rubber in the prior art of LARSON includes 1,4 cis-polyisoprene rubber both synthetic and natural, polybutadiene, SBR, SIB and the like [0050-0051]. In the examples, natural rubber is utilized in 100 parts by weight (Table 1). The specification discloses use of 1,4-cis polyisoprene, since that is the monomer utilized, then the content of 1,4-cis is about 100%.

Table 1 also discloses use of processing oil in the amount of 3 pbw, zinc oxide and tackifying resin in addition to the curatives.

The specification further enables one of ordinary skill in the art to utilize coupling agents, which are bifunctional silanes having alkoxy substituents [0045].

In the light of the above disclosure, the prior art of LARSON anticipates requirements of the present invention.

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6. Claims 1-3, 16-17, 19, 21, 23, 24 are rejected under 35 U.S.C. 102(b) as being anticipated by KRESGE (US 5,576,372).

The prior art of KRESGE discloses composition for tire inner liners comprising clay intercalated with reactive rubber, wherein the reactive rubber contains ammonium cations (see claims).

The intercalated clay is then dispersed in matrix rubber, mixed and formed into an article. The content of the layered silicate is in a range of 1-50 pbw (col. 2, line 35-36) per 100 parts of rubber. The thickness of the platelets is 0.7-1.2 nm (col. 2, line 47). Clay of KRESGE is smectite type clay such as montmorillonite (col. 2, lines 56-61).

Solid rubber of KRESGE includes SBR, PI and the like as well as copolymers of the butadiene with styrene, isoprene or acrylonitrile and the like (col. 4, lines 32-41).

The composition of KRESGE also contains carbon black in an amount of 0-70 parts by weight (col. 4, lines 52-64).

Additives include plasticizers such as hydrocarbon process oils (col. 2, line 67 to col. 3, line 2).

In the light of the above disclosure the prior art of KRESGE anticipates requirements of the claims rejected above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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10. Claims 4-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over KRESGE (US 5,576,372) in view of ELSPASS (US 6,034,164)

The discussion of the disclosure of the prior art of KRESGE from paragraph 6 of this office action is incorporated here by reference.

The difference between prior art of KRESGE and the present invention is use of ammonium compound instead of functionalized rubber.

With respect to the above difference, the prior art of ELSPASS discloses composition for tire inner liner comprising exfoliated clay.

Clay is intercalated with dialkyl ammonium salt before it is incorporated into the rubber composition (Example 1). The alkyl substituents on the ammonium salts have 1-40 carbon atoms (col. 3, lines 21-35).

Ammonium compounds are utilized in order to "compatibilize" rubber and increase basal spacing between clay platelets. Increase of basal spacing allows better adsorption of rubber in between clay platelets.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the ammonium compounds of ELSPASS in the composition of KRESGE and thereby obtain the claimed invention. Use of ammonium compounds would also results in increased basal spacing and better interactions between clay platelet and matrix rubber.

11. Claims 28-30 rejected under 35 U.S.C. 103(a) as being unpatentable over LARSON (US 6,598,645) in view of OSHIMA (US 5,250,630).

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The discussion of the disclosure of the prior art of LARSON from paragraph 4 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of LARSON is making of a tire tread and its use in racing tire.

With respect to the above difference the prior art of OSHIMA discloses rubber composition for pneumatic tire. The fillers utilized in the tire tread of the composition of OSHIMA include clay as adequate for use (col. 4, lines 3-4).

The rubber composition is utilized in a tread of a racing tire since it provides good grip at high temperatures (col. 5, lines 1-7).

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art to utilize the composition of LARSON in the tire tread or in the racing tire, since the composition would also exhibit the good grip.

12. Claims 28-30 rejected under 35 U.S.C. 103(a) as being unpatentable over LARSON (US 2003/0032710) in view of OSHIMA (US 5,250,630).

The discussion of the disclosure of the prior art of LARSON from paragraph 4 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of LARSON is its use in racing tire.

With respect to the above difference the prior art of OSHIMA discloses rubber composition for pneumatic tire. The fillers utilized in the tire tread of the composition of OSHIMA include clay as adequate for use (col. 4, lines 3-4).

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The rubber composition is utilized in a tread of a racing tire since it provides good grip at high temperatures (col. 5, lines 1-7).

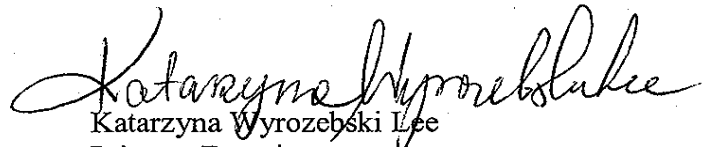
In the light of the above disclosure it would have been obvious to one having ordinary skill in the art to utilize the composition of LARSON in the tire tread or in the racing tire, since the composition would also exhibit the good grip.

As of December 12, the new phone number for the examiner of record will be 571-272-1127

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Katarzyna Wyrozebski Lee
Primary Examiner
Art Unit 1714

December 3, 2003